

What is claimed is:

- 1    1.     A method comprising determining a power savings level for a mobile station  
2     based on an amount of data traffic.
  
- 1    2.     The method of claim 1 further comprising determining the amount of data  
2     traffic as a percentage of traffic activity within a time interval.
  
- 1    3.     The method of claim 1 wherein determining a power savings level comprises  
2     determining a time interval for the mobile station to sleep.
  
- 1    4.     The method of claim 3 wherein determining a time interval for the mobile  
2     station to sleep comprises comparing a desired sleep interval and a required wake-  
3     up time to receive broadcast and multicast packets.
  
- 1    5.     The method of claim 3 wherein the time interval for the mobile station to  
2     sleep is expressed as a number of 802.11 compliant beacon intervals.
  
- 1    6.     The method of claim 5 wherein the method is performed within a beacon  
2     monitor task run in response to an interrupt caused by a Target Beacon  
3     Transmission Times (TBTT) timer.
  
- 1    7.     The method of claim 5 wherein determining a time interval for the mobile  
2     station to sleep comprises comparing a Delivery Traffic Indication Message (DTIM)  
3     count within a received beacon with a time interval associated with the power  
4     saving level.
  
- 1    8.     A method comprising:  
2                determining a desired sleep interval to sleep to save power;

3           determining a broadcast time to wake up to receive packets from an access  
4   point; and

5           setting a wake-up time based on the desired sleep interval and the broadcast  
6   time.

1   9.       The method of claim 8 wherein determining a desired sleep interval  
2   comprises determining a desired number of beacon intervals to sleep.

1   10.      The method of claim 8 wherein determining a desired sleep interval  
2   comprises determining a desired number of beacon intervals to sleep based, at least  
3   in part, on a volume of data traffic.

1   11.      The method of claim 10 wherein determining a desired sleep interval further  
2   comprises selecting one of a plurality of power savings levels based on the volume  
3   of data traffic.

1   12.      The method of claim 8 wherein determining a broadcast time comprises  
2   examining a Traffic Indication Map (TIM) element within an 802.11 compliant  
3   beacon.

1   13.      The method of claim 8 wherein setting a wake-up time comprises setting the  
2   wake-up time to the end of one desired sleep interval when the broadcast time is  
3   more than two desired sleep intervals in the future.

1   14.      The method of claim 8 wherein setting a wake-up time comprises setting the  
2   wake-up time to the broadcast time when the broadcast time is less than two desired  
3   sleep intervals in the future.

1   15.      An apparatus having a machine-readable medium with instructions stored  
2   thereon that when accessed, result in a machine performing:

3           waking up a mobile station to receive a beacon;  
4           evaluating traffic activity; and  
5           setting a power savings level for the mobile station based on the traffic  
6           activity.

1       16.     The apparatus of claim 15 wherein evaluating traffic activity comprises  
2           determining a percentage of traffic time over a time interval.

1       17.     The apparatus of claim 16 wherein the power savings level may be set  
2           differently each time the traffic activity is evaluated.

1       18.     The apparatus of claim 15 further comprising setting a sleep time associated  
2           the power savings level.

1       19.     The apparatus of claim 15 wherein setting a power savings level comprises  
2           determining a number of beacon intervals for the mobile station to sleep.

1       20.     The apparatus of claim 19 wherein determining a number of beacon intervals  
2           for the mobile station to sleep comprises comparing a desired number of beacon  
3           intervals with a Delivery Traffic Indication Message (DTIM) count.

1       21.     An apparatus configured to communicate in an 802.11 wireless network, and  
2           configured to sleep for a number of beacon intervals based on traffic volume.

1       22.     The apparatus of claim 21 comprising a network interface card.

1       23.     The apparatus of claim 21 comprising a mobile computer.

1       24.     An electronic system comprising:  
2           a plurality of antennas;

3           a radio interface coupled to the plurality of antennas;  
4           a processor coupled to the radio interface; and  
5           a static random access memory with instructions stored thereon that when  
6       accessed, result in the processor performing:  
7           waking up an apparatus to receive a beacon, evaluating traffic activity, and  
8       setting a power savings level for the apparatus based on the traffic activity.

1     25.    The electronic system of claim 24 wherein setting a power savings level  
2       comprises determining a time interval for the apparatus to sleep.

1     26.    The electronic system of claim 25 wherein determining a time interval for  
2       the apparatus to sleep comprises comparing a desired sleep interval and a required  
3       wake-up time to receive multicast packets.

1     27.    The electronic system of claim 25 wherein the time interval for the apparatus  
2       to sleep is expressed as a number of beacon intervals.